

Authority NND 735001  
By VRC NARA Date 9/24/02

ORIGINAL  
(Reg)

**RESTRICTED**

NEW RIVER ORDNANCE PLANT  
(Original)

Vol. VI

Facilities History

1 July 1945 thru 30 September 1945

**RESTRICTED**

RG 156 - CHIEF OF ORDNANCE

Entry 646 - Histories of Ordnance Facilities  
and Activities, 1940-1945

Box A132 - New River

DECLASSIFIED  
Authority NND 735011  
By SG NARA Date 9-24-02

ORIGINAL  
(Reg)

AUG 6 1945

FACILITIES HISTORICAL REPORT  
NEW RIVER ORDNANCE PLANT  
OF  
RADFORD ORDNANCE WORKS  
QUARTER APRIL 1 - JUNE ~~30~~, 1945

Prepared by  
HERCULES POWDER COMPANY  
A. VAN BEEK, MANAGER

Submitted to  
MAJOR JOHN K. ROULEAU, ORDNANCE DEPARTMENT  
COMMANDING OFFICER

RADFORD ORDNANCE WORKS  
NEW RIVER ORDNANCE PLANT  
RADFORD, VIRGINIA  
JULY 31, 1945

DECLASSIFIED

Authority AMP 735011By SG NARA Date 9-24-02ORIGINAL  
(Reg)

## QUARTERLY HISTORICAL REPORT

## TABLE OF CONTENTS

	<u>Page</u>
SCHEDULE I - <u>Ordnance Administration</u>	
1. Army Officers on Duty and Functions	1
SCHEDULE II - <u>Contractor Administration</u>	
1. Key Personnel	2
2. Changes in Contract	2
3. Industrial Relations:	
a. Labor Market	4
b. Labor Relations	4
c. Training of Employees	5
d. Housing and Employee Transportation to Plant	6
e. Important Changes in Wages and Salaries	7
f. Morale Problems	7
SCHEDULE III - <u>Production</u>	
1. Production Schedules	10
2. Production Methods, Practices, and Techniques	10
3. Production Progress	12
4. Troubles and Difficulties	12
5. Inspection Problems and Practices	14
6. Industrial Safety	15

DECLASSIFIED  
Authority AND 735011  
By SA NARA Date 9-24-02

ORIGINAL  
(Reg)

## TABLE OF CONTENTS (Continued)

	<u>Page</u>
SCHEDULE IV - <u>Statistical Data</u>	
1. Production Volume and Cost	19
2. Plant Budget Estimate	19
3. Lost-time Injury Tabulation	19
4. Personnel Count	19
SCHEDULE V - <u>Construction</u>	
1. Change Orders	88
SCHEDULE VI - <u>Special</u>	
1. Vacation Pay For Hourly Employees	89
2. Dismissal Wages	90
3. 7th War Loan Drive	91
4. New River Plant Paper	91

DECLASSIFIED  
Authority AMP 735011  
By SG NARA Date 9-24-02

ORIGINAL  
(Rec)

2

## SCHEDULE II

### Contractor Administration

#### 1. Key Personnel

Schedule No. 5, showing key personnel as of June 30, 1945, may be found on pages 8 and 9.

#### 2. Changes in Contract W-ORD-462, DA-W-ORD-26

Supplement No. 42 to Contract W-ORD-462, entered into and accepted by the contractor as of April 9, 1945, was issued to provide for the additional operation of the plant for a period of twelve months commencing April 21, 1945; to provide for additional facilities for the manufacture of double-base trench mortar powder; to provide for the loading of propellant charges at the New River Ordnance Plant; and to provide for the packaging of trench mortar increments at the Radford Ordnance Works. This supplement embodied Change Orders No. 32 dated November 13, 1944; No. 33, dated November 16, 1944; No. 34, dated December 29, 1944; No. 35, dated November 21, 1944; No. 36, dated January 19, 1945; No. 37, dated February 10, 1945; No. 38, dated March 2, 1945; No. 39, dated March 13, 1945; No. 40, dated March 24, 1945; and No. 41 dated March 26, 1945.

The estimated cost of construction and equipment provided by Supplement No. 42 was \$18,006,985.00 exclusive of fixed fees.

The estimated cost for operation for the period beginning April 21, 1945, to April 20, 1946, was \$80,869,472.00, exclusive of fixed fees.

Change Order No. 45 to Contract W-ORD-462, dated May 10, 1945, and accepted by contractor May 21, 1945, was issued to authorize and direct

DECLASSIFIED  
Authority NND 735011  
By SA NARA Date 9-24-02

ORIGINAL  
(Reg)

3

the contractor to proceed immediately to terminate all work and cancel all subcontracts and purchase orders for materials, supplies, or services in connection with the construction of Propellant Loading Line No.5 at the New River Ordnance Plant, subject to the following limitation:

a. The "A" Side of Loading Line No.5 will be cancelled in its entirety..

b. On the "B" Side of Loading Line No.5, buildings only now in process of construction will be completed, without utilities, equipment, grounding, safety chutes, walks, and barricades.

In the performance of the work outlined in Subdivision "b" above, it was desired that the completion of construction be confined to the "bare necessity type" sufficient only to permit the use of said buildings for storage purposes; because of acute labor conditions which prevailed in this area, work detailed in Subdivision "b" was held in abeyance.

Change Order No. 46 to Contract W-ORD-462, dated May 12, 1945, and accepted by the contractor June 7, 1945, was issued to authorize and direct the contractor to proceed immediately to terminate all work and cancel all subcontracts and purchase orders for equipment, materials, supplies, or services which were not necessary to meet the revised production schedules issued by the Office of Field Director of Ammunition Plants on May 4, 1945, for Radford Ordnance Works and on or about May 4, 1945, for New River Ordnance Plant, except such items as, for the benefit of the over-all ordnance program, may be expressly expected from the operation of this direction by the contracting officer.

DECLASSIFIED  
Authority AMP 735011  
By SSA NARA Date 9-24-02

ORIGINAL  
(Red)

10

### SCHEDULE III

#### Production

#### 1. Production Schedules

For production schedules, see Industry Integration Schedule No. 9, pages 16 through 18.

#### 2. Production Methods, Practices, and Techniques

Upon instructions from the Ordnance Department, the design of bags for increments for 105 MM. Howitzer Charge was changed from circular to square. The manufacture of the square bags was accomplished in the following steps: slitting and rewinding; folding, sewing into tubing, and rewinding; random printing on 10-x-15 open job printing press and rewinding; cutting on Artos Cutter; and sewing bottom and top.

A lock-stitch machine was used for the tube sewing until delivery of chain-stitch machines was obtained. The major savings in this type of operation was in the printing, as approximately 14,000 sets of increment bags could be printed per press per eight-hour shift by random printing as against approximately 2,000 sets per press per eight-hour shift when feeding individual pieces into the press.

Permission was received from the War Department to discontinue the use of protector caps on the 155 MM. Howitzer, M4A1 on June 1, 1945.

On May 24, 1945, the unloading of powder by the magazine crew from trailers into the Incoming Rest Houses was discontinued. The trailers were spotted at the platform at the Incoming Rest House, and the operating employees removed the powder direct from trailers to the Operating buildings,

DECLASSIFIED

Authority AMP 735011  
By SA NARA Date 9-24-02ORIGINAL  
(Rec)

11

thus eliminating the extra handling of unloading into Incoming Rest House and then moving it to Operating buildings. The finished charges were handled in like manner at the Shipping Rest House.

In the Screening and Drying Unit of the Black Powder Area, new conductive rubber containers were put into service in April and were used solely for Grade A2 Black Powder. Since the lids did not fit very well on these containers, improvements in the design were suggested and submitted to the plant engineer.

On April 13, 1945, approval was received from the War Department to use 6-inch of cellophane tape to seal scutan bags instead of 10-inch as previously specified. A savings of approximately 100,000 feet of tape per month will be realized by this change.

Effective May 10, 1945, the stenciling of the Flash Reducer containers was turned over to the Stores Department, and operating personnel previously engaged in this operation was transferred to this department.

A new Flash Reducer Shipping Case, consisting of a thin-gauge metal liner contained in a wooden case, was introduced on the lines May 18, 1945. Since these containers were of comparatively poor quality, approximately 44% were rejected for various defects. To minimize delay and repacking on the Production lines, the containers were inspected prior to stenciling. According to specifications, one steel strap was to be placed around the completely packed container, but to obtain a satisfactory result, it was necessary to strap the container to two places.

Because of reductions in production schedules at the New River Ordnance Plant, operations in the Black Powder Area were reduced to one shift on June 11, 1945.



DECLASSIFIED  
Authority AMP 735011  
By SSA NARA Date 9-24-02

ORIGINAL  
(Rec)

12

### 3. Production Progress

The following increases in individual production per eight-hour shift in the Bag Loading Department and Bag Manufacturing Department during the quarter are listed:

Individual production per shift in the Bag Manufacturing Department increased from 50 to 103 complete bags on the 105 MM. Howitzer; increased from 33 to 45 complete bags on the 155 MM. Howitzer; and increased from 35 to 48 complete bags on Flash Reducers. Individual production per shift in the Bag Loading Department increased from 36 to 38 complete charges on the 105 MM. Howitzer; increased from 21 to 22 complete charges on the 155 MM. Howitzer; and increased from 22 to 29 complete charges on Flash Reducers.

For production progress, see Industry Integration Schedule No. 9, pages 16 through 18.

### 4. Troubles and Difficulties

Considerable difficulty was encountered in the Smokeless Area in June with the inert weight's being inconsistent on both the 105 MM. Howitzer and 155 MM. Howitzer. The Bag Manufacturing Department was instructed to weigh all Base 3 bags on the 155 MM. Howitzer in order to maintain a fixed inert weight. Several tests were made, and these tests indicated there was a definite variation in the cloth. In some instances moisture was picked up in the cloth. No previous trouble had been encountered with the 105 MM. Howitzer prior to the change over to the square bags.

Additional difficulty was experienced with the square bags because of insufficient chaining off on the bottom of these bags by the Bag Manufacturing Department.

DECLASSIFIED  
Authority AMP 735011  
By SA NARA Date 9-24-02

ORIGINAL  
(Reg)

13

All subcontracts which had been issued to outside concerns to provide for the sewing of 105 MM. Howitzer bags during the quarter ending March 31, 1945, were cancelled during the quarter ending June 30, 1945. Increased efficiency and an increase in operating personnel in the Bag Manufacturing Department made this change possible.

Because of the shortage of Grade "C" Silk, it was necessary for the igniter pads on the 155 MM. Howitzer, M4A1 charges to be made of Grade "E" Silk. This change was satisfactory and did not affect the loading operations.

Early in the month of April, the packaging of Trench Mortar M3 increments was changed from Sylvania Saran Coated Cellophane to du Pont MSAT Cellophane. Packaging of Trench Mortar M1 and M2A1 increments was changed from du Pont MSAT to Saran Coated Cellophane. The first lot of M1 increments packaged with the Saran Coated Cellophane and the last lot of M3A1 increments packaged with Saran Coated Cellophane failed to meet the requirements for the Visual Examination. In both cases there were a number of poorly sealed increments found that looked as if they were due to cold crimping rolls. Temperature records had been kept during this period, and these records indicated that the temperature had not been low enough to account for the cold seals. After these two lots had been rejected, the quality of the seal was watched very closely, and considerable amount of the Saran Cellophane for both the M1 and M2A1 increments was discarded because it would not seal at any temperature. Most of the cellophane which was run had to be sealed at a temperature of 290 degrees to 310 degrees F. instead of at 270 degrees to 290 degrees F., which had been normal for this type of cellophane. All other lots were within specifications, but the average

DECLASSIFIED

Authority AMP 735011  
By SG NARA Date 9-24-02ORIGINAL  
(Rec)

14

number of visual defects was greater than was previously encountered with this type of cellophane. The Immersion Test results were much poorer than had been obtained during the last few months with Saran Cellophane. There was, unquestionably, a difference from roll to roll of this cellophane.

The lot of M3 Powder which was rejected was reinspected and accepted. The lot of M1 Powder which was rejected was reinspected and did not meet requirements for the Visual Examination but was accepted on a waiver.

##### 5. Inspection Problems and Practices

During the month of May, it was necessary to add additional inspectors on each shift in the Flash Reducer sections of the Bag Manufacturing Department to inspect the matching seam across the center of each Flash Reducer Bag. The needle was cutting the thread occasionally. A change to a smaller-size needle did not eliminate the trouble. The presser foot on the sewing machines was released, thread was changed, mechanics checked each machine, and instructors reinstructed each operator in the proper way to insert the bobbin. These additional changes eliminated most of the trouble.

In the Flash Reducer Area of Black Powder Bag Loading, the War Department inspectors obtained all of their Flash Reducer samples from completely packed and luted shipping containers, and the luting in the boxes was inspected at this point. This procedure was instituted on June 9, 1945.

On June 2, 1945, the Smokeless Area was instructed to start an inspection procedure on all incoming cars of M-13 containers. A sample of the required number of containers was removed from the cars and tested before the cars were unloaded. All containers were accepted.

During the month of June, the Government Inspection Department made an

DECLASSIFIED

Authority AMP 735011  
By SA NARA Date 9-24-02ORIGINAL  
(Reg)

15

Immersion Test on 50 M-13 containers loaded with complete charges of 155 MM. Howitzer M4A1. These charges were subjected to a twenty-four hour test, and not a single container showed any evidence of leakage.

6. Industrial Safety

The Orientation Course as outlined in the "Historical Report" for quarter ending March 31, 1945, remained in effect throughout the quarter ending June 30, 1945. New employees were supplied with a Safety Manual, and particular attention was called to the necessity of personal care required in order to prevent accidents. A new bulletin and display board was constructed during the quarter and located in front of the clock lanes. Posters, displays of handicraft and trophies, as well as departmental safety, absenteeism, and other records were exhibited in appropriate sections.

The sodding of the Flash Reducer Grounds and the sowing of grass seed in this area was started April 26, 1945, by Mason and Hanger, construction contractors.

## HERCULES POWDER COMPANY

## R E S T R I C T E D

## PRODUCTION VS. SCHEDULE

April 30, 1945

RADFORD ORDNANCE WORKS  
NEW RIVER ORDNANCE PLANT  
PLANT 443 - SCHEDULE 9 FINAL  
STANDARDS & PERFORMANCE MANUAL

Item No.	Nomenclature	House Shifts	Actual Capacity	Ordnance Schedule	Month to Date Plant Schedule	Month to Date-Actual Production	This Date-Actual Production
500200	Charge Prop., 105 MM How., M2 M2A1, M4	9 (BL)	100.0%	1,250,000	1,250,000 (a)	897,560	35,840
1235	Charge Prop., M4A1 (White Bag) for 155 MM How., M1	6 (BL)	100.0%	350,000	350,000 (b)	336,950	13,266
1585	Flash Reducer M1 for 155 MM Gun	21 (FR)	100.0%	300,000	300,000 (c)	333,350	12,550

Operating House Comments(1) Total Number of Smokeless  
Houses Operating

First Shift - 7 - (2 houses operating on Rolled Powder Increment Packaging,  
3 on 105 MM How., and 2 on 155 MM How.)  
Second Shift - 7 - (2 houses operating on Rolled Powder Increment Packaging,  
3 on 105 MM How., and 2 on 155 MM How.)  
Third Shift - 7 - (2 houses operating on Rolled Powder Increment Packaging,  
3 on 105 MM How., and 2 on 155 MM How.)

(2) Total Number of Smokeless  
Houses Not Operating

First Shift - 1  
Second Shift - 1  
Third Shift - 1

7 Flash Reducer buildings operating 3 shifts on Flash Reducer M1 for 155 MM Gun

Comments

- (a) 105 How. - Estimated plant production of 875,000 charges exceeded. Lack of sufficient labor prevented surmounting requirements in full.
- (b) 155 How. - Requirements met within allowance applicable to B Class schedule.
- (c) Flash Reducer - Schedule exceeded by 11%.

Prepared by S.J.A. 5-1-45

DECLASSIFIED  
Authority: NND 735011  
By: SA NARA Date: 9-24-02

HERCULES POWDER COMPANY

R E S T R I C T E D

PRODUCTION VS. SCHEDULE

May 31, 1945

RADFORD ORDNANCE WORKS  
NEW RIVER ORDNANCE PLANT  
PLANT 443 - SCHEDULE 9 FINAL  
STANDARDS & PERFORMANCE MANUAL

<u>Item No.</u>	<u>Nomenclature</u>	<u>House Shifts</u>	<u>Actual Capacity</u>	<u>Ordnance Schedule</u>	<u>Month to Date Plant Schedule</u>	<u>Month to Date-Actual Production</u>	<u>This Date-Actual Production</u>
500200	Charge, Prop., 105 MM How., M2, M2A1, M4	18 (BL)	100.0%	1,250,000	1,250,000 (a)	1,264,640	70,520
1235	Charge, Prop., M4A1 (White Bag) for 155 MM How., M1	0 (BL)	100.0%	325,000	325,000 (b)	327,500	0
1585	Flash Reducer M1 for 155 MM Gun	9 (FR)	100.0%	225,000	225,000 (c)	228,330	7,110

Operating House Comments

- (1) Total Number of Smokeless Houses Operating

First Shift - 7 - (1 house operating on Rolled Powder Increment Packaging, and 6 on 105 MM How.)  
 Second Shift - 7 - (1 house operating on Rolled Powder Increment Packaging, and 6 on 105 MM How.)  
 Third Shift - 7 - (1 house operating on Rolled Powder Increment Packaging, and 6 on 105 MM How.)

- (2) Total Number of Smokeless Houses Not Operating

First Shift - 1  
 Second Shift - 1  
 Third Shift - 1

3 Flash Reducer buildings operating 3 shifts on Flash Reducer M1 for 155 MM Gun  
 5 Flash Reducer buildings not operating

Comments

- (a) 105 How. - Schedule completed.  
 (b) 155 How. - Schedule completed. Houses shifted to 105 MM How.  
 (c) Flash Reducer - Schedule completed

Prepared by C.W.R. 6-1-45

DECLASSIFIED  
 Authority: AMP 735011  
 By: SA NARA Date: 9-24-02

## HERCULES POWDER COMPANY

## R E S T R I C T E D

## PRODUCTION VS. SCHEDULE

June 27, 1945

RADFORD ORDNANCE WORKS  
NEW RIVER ORDNANCE PLANT  
PLANT 443 - SCHEDULE 9 FINAL  
STANDARDS & PERFORMANCE MAINTAIN.

Item No.	Description	Houses Shifts	Actual Capacity	Ordnance Schedule	Month to Date Plant Schedule	Month to Date-Actual Production	This Date-Actual Production
500200	Charge, Propelling, 105 MM How. M2, M2A1, M4	10 (BL)	100.0%	1,300,000	1,300,000 (a)	1,283,160	33,320
1235	Charge, Prop., M4A1 (White Bag) for 155 MM How., M1	3 (BL)	100.0%	300,000	300,000 (b)	300,000	5,913
1585	Flash Reducer M1 for 155 MM Gun	5 (FR)	100.0%	140,000	140,000 (c)	140,040	2,025

Operating House Comments(1) Total Number of Smokeless  
Houses Operating

First Shift - 7 - (1 house operating on Rolled Powder Increment Packaging,  
3 on 105 MM How., and 1 on 155 MM How.)  
Second Shift - 7 - (1 house operating on Rolled Powder Increment Packaging,  
4 on 105 MM How., and 1 on 155 MM How.)  
Third Shift - 7 - (1 house operating on Rolled Powder Increment Packaging,  
3 on 105 MM How., and 1 on 155 MM How.)

(2) Total Number of Smokeless  
Houses Not Operating

First Shift - 3  
Second Shift - 2  
Third Shift - 3

Number of Flash Reducer buildings operating: 5 on First Shift, 0 on Second Shift and 0 on Third Shift.

Number of Flash Reducer buildings not operating: 3 on First Shift, 8 on Second Shift and 8 on Third Shift.

Comments

- (a) 105 How. - Underrun schedule as Ordnance Dept. did not permit an overrun.  
(b) 155 How. - Schedule completed.  
(c) Flash Reducer - Schedule completed.

Note: This report covers 2 shifts on Saturday and 1 shift on Sunday and it is this plants practice to consider this as one full working day.

Month to date actual production shown on this report will not agree with quantities produced shown on our cost statements and schedule No. 10 by the following quantities:

105 How. M2 - 10,720; 155 How M4A1 - 1,655;

These figures represent production on the 1 shift operated on July 1 subsequent to the taking of monthly inventories.